Amendments to the Claims

1. (Previously Presented) A speech reference enrollment method, comprising:

receiving a first utterance of a word;

extracting a plurality of features from the first utterance;

receiving a second utterance of the word;

extracting the plurality of features from the second utterance;

determining a first similarity between the plurality of features from the first utterance and the plurality of features from the second utterance;

when the first similarity is less than a predetermined similarity, requesting a user to speak a third utterance of the word;

extracting the plurality of features from the third utterance;

determining a second similarity between the plurality of features from the first utterance and the plurality of features from the third utterance; and

when the second similarity is greater than or equal to the predetermined similarity, forming a reference for the word.

2. (Previously Presented) The method of claim 1, further comprising:

when the second similarity is less than the predetermined similarity, determining a third similarity between the plurality of features from the second utterance and the plurality of features from the third utterance; and

when the third similarity is greater than or equal to the predetermined similarity, forming the reference for the word.

3. (Previously Presented) The method of claim 2, further comprising when the third similarity is less than the predetermined similarity, receiving another first utterance of the word.

4. (Previously Presented) The method of claim 1, further comprising:

determining a duration of the second utterance; and

when the duration is less than a minimum duration, disregarding the second utterance.

5. (Previously Presented) The method of claim 1, further comprising:

determining a duration of the second utterance; and

when the duration is greater than a maximum duration, disregarding the second utterance.

6. (Previously Presented) The method of claim 5, further comprising:

setting an amplitude threshold;

determining a start time when an input signal exceeds the amplitude threshold;

determining an end time, after the start time, when the input signal is less than the amplitude threshold; and

calculating the duration as a difference between the end time and the start time.

7. (Currently Amended) The method of claim 1, further comprising:

determining an estimate of a number of voiced speech frames; and

when the estimate of the number of voiced speech frames is less than a ~~threshold~~ threshold, requesting the user repeat the word.

8. (Previously Presented) The method of claim 1, further comprising:

determining a signal to noise ratio of the first utterance; and

when the signal to noise ratio is less than a predetermined signal to noise ratio, increasing a gain of a voice amplifier.

9. (Previously Presented) The method of claim 8, further comprising requesting the user repeat the word.

10. (Previously Presented) The method of claim 1, further comprising determining an amplitude histogram of the first utterance.

11. (Previously Presented) A speech reference enrollment method, comprising:

requesting a user speak a word;

detecting a first utterance;

requesting the user speak the word;

detecting a second utterance;

determining a first similarity between the first utterance and the second utterance;

when the first similarity is less than a predetermined similarity, requesting the user speak the word;

detecting a third utterance;

determining a second similarity between the first utterance and the third utterance; and

when the second similarity is greater than or equal to the predetermined similarity, creating a reference.

12. (Previously Presented) The method of claim 11, further comprising:

determining a third similarity between the second utterance and the third utterance; and

when the third similarity is greater than or equal to the predetermined similarity, creating the reference.

13. (Previously Presented) The method of claim 12, further comprising when the third similarity is less than the predetermined similarity, requesting the user re-speak the word.

14. (Previously Presented) The method of claim 11, further comprising:

determining if the first utterance exceeds an amplitude threshold within a timeout period; and

when the first utterance does not exceed the amplitude threshold within the timeout period, requesting the user re-speak the word.

15. (Previously Presented) The method of claim 11, further comprising:

determining an estimate of a number of voiced speech frames; and

when the number of voiced speech frames is less than a predetermined number of voiced speech frames, requesting the user re-speak the word.

16. (Previously Presented) The method of claim 11, further comprising:

determining a duration of the first utterance;

when the duration is less than a minimum duration, requesting the user re-speak the word; and

when the duration is greater than a maximum duration, requesting the user re-speak the word.

17. (Previously Presented) A computer readable storage medium containing computer readable instructions that, when executed by a computer, cause the computer to:

request a user speak a word;

receive a first digitized utterance;

extract a plurality of features from the first digitized utterance;

request the user speak the word;

receive a second digitized utterance of the word;

extract the plurality of features from the second digitized utterance;

determine a first similarity between the plurality of features from the first digitized utterance and the plurality of features from the second digitized utterance;

when the first similarity is less than a predetermined similarity, request the user to speak a third utterance of the word;

extract the plurality of features from a third digitized utterance;

determine a second similarity between the plurality of features from the first digitized utterance and the plurality of features from the third digitized utterance; and

when the second similarity is greater than or equal to the predetermined similarity, form a reference for the word.

18. (Previously Presented) The computer readable storage medium of claim 17 containing computer readable instructions that, when executed by the computer, cause the computer to:

when the second similarity is less than the predetermined similarity, determine a third similarity between the plurality of features from the second digitized utterance and the plurality of features from the third digitized utterance; and

when the third similarity is greater than or equal to the predetermined similarity, form the reference for the word.

19. (Currently Amended) The computer readable storage medium of claim 18 containing computer readable instructions that, when executed by the computer, cause the computer to:

when the third similarity is less than the predetermined similarity, ~~requesting~~ request the user re-speak the word.

20. (Previously Presented) The computer readable storage medium of claim 17 containing computer readable instructions that, when executed by the computer, cause the computer to:

determine a signal to noise ratio; and

when the signal to noise ratio is less than a predetermined signal to noise ratio, request the user re-speak the word.

21. (Previously Presented) The computer readable storage medium of claim 20 containing computer readable instructions that, when executed by the computer, cause the computer to increase a gain of an amplifier when the signal to noise ratio is less that the predetermined signal to noise ratio.

22. (Previously Presented) The computer readable storage medium of claim 17 containing computer readable instructions that, when executed by the computer, cause the computer to:

determine if an amplifier gain is saturated; and

when the amplifier gain is saturated, request the user re-speak the word.

23. (Previously Presented) A speech reference enrollment method, comprising:

receiving a first utterance of a word;

extracting a plurality of features from the first utterance;

determining a signal to noise ratio of the first utterance;

when the signal to noise ratio is less than a predetermined signal to noise ratio, increasing a gain of a voice amplifier;

receiving a second utterance of the word; and

extracting the plurality of features from the second utterance.

24. (Previously Presented) The method of claim 23, further comprising:

determining a first similarity between the plurality of features from the first utterance and the plurality of features from the second utterance;

when the first similarity is less than a predetermined similarity, requesting a user to speak a third utterance of the word;

extracting the plurality of features from the third utterance;

determining a second similarity between the plurality of features from the first utterance and the plurality of features from the third utterance; and

when the second similarity is greater than or equal to the predetermined similarity, forming a reference for the word.

25. (Previously Presented) The method of claim 24, further comprising:

when the second similarity is less than the predetermined similarity, determining a third similarity between the plurality of features from the second utterance and the plurality of features from the third utterance; and

when the third similarity is greater than or equal to the predetermined similarity, forming the reference for the word.

26. (Previously Presented) The method of claim 23, further comprising:

determining a signal to noise ratio of the second utterance; and

when the signal to noise ratio is less than a predetermined signal to noise ratio, increasing the gain of the voice amplifier and receiving a third utterance of the word.

27. (Canceled)

28. (Previously Presented) The system of claim 30, further comprising a feature extractor connected to an output of the adjustable gain amplifier, wherein the feature extractor forms an amplitude histogram.

29. (Currently Amended) The system of claim 30, further comprising a signal to noise comparator having a first input connected to a signal to noise ~~meter and~~ meter, a second input connected to a threshold, and an output ~~of the signal to noise comparator is~~ connected to a gain input of the adjustable gain amplifier.

30. (Previously Presented) A speech recognition system, comprising:

an amplitude threshold detector connected to an input speech signal;

an adjustable gain amplifier connected to the input speech signal;

an amplitude comparator to compare an output of the adjustable gain amplifier to a saturation threshold; and

a feature comparator connected to an output of a feature extractor, wherein a gain input of the adjustable gain amplifier can be adjusted both up and down during receipt of the input speech signal.

31. (Original) The system of claim 30, further including a timer connected to an output of the amplitude threshold detector.

32. (Original) The system of claim 30, wherein the feature extractor forms an amplitude histogram.